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NETLEY ABBEY.

[Ruins of Netley Abbey.]

NETLEY (or Nettley) Abbey, near Southampton, has long been celebrated as one of the most picturesque ruins in England. The proper name of the place appears, as Leland has noted it in his Collectanea (vol. i. p. 69), to be Letteley, which has been Latinized into *de Læto Loco* (pleasant place), if it be not, as has been most commonly supposed, a corruption of this Latin designation. Another abbey in the neighbourhood was, in the same manner, called *Beaulieu* in French or Norman, and *de Bello Loco* in Latin. The founder of Netley Abbey is stated by Leland to have been Peter Roche, Bishop of Winchester, who died in 1238. This account, however, is inconsistent with that of Tanner, who, on the authority of an ancient manuscript, gives 1239 as the date of the foundation. The first charter bears to be granted by Henry III. in 1251. The abbey is there called *Ecclesia Sanctæ Mariæ de loco Sancti Edwardi*, and, in conformity with this, another of the English names of the place is Edwardstow. The monks of Netley Abbey belonged to the severe order of the Cistertians, and were originally brought from the neighbouring house of Beaulieu. Hardly anything has been collected with regard to the establishment for the first three hundred years after its foundation, except the names of a few of the abbots. At the dissolution it consisted of an abbot and twelve monks, and its net revenue was returned at only

about £100. It appears, indeed, to have been always a humble and obscure establishment. In the valuation of Pope Nicholas IV., made towards the end of the thirteenth century, it is set down as having only an income of £17. Nor did the riches of the good monks consist in their library. Leland found them possessed of only one book, which was a copy of Cicero's Treatise on Rhetoric. In 1537 the place was granted by the King to Sir William Paulet, afterwards the celebrated Marquis of Winchester, who, according to his own account, was indebted for so much success in life to "being a willow, not an oak." From him, or his descendants, it passed to Edward Seymour, Earl of Hertford, the son of the Protector Somerset, who is said to have made it his residence. In a little work, entitled 'A Companion in a visit to Netley Abbey,' printed in 1800, there is an extract given from the parish register of St. Michael's, Southampton, from which it is inferred that Queen Elizabeth visited Lord Hertford in August, 1560; a circumstance not noticed in the elaborate account of her Majesty's 'Progresses,' published by the late Mr. Nicholls. It states that she came from the Castle of Netley to Southampton on the 13th, and went thence to Winchester on the 16th. The Abbey, it is supposed, at this time was known by the name of the Castle. About the end of the 17th century it became the property, it is said, of a Marquis of Huntingdon; but the Earl of Huntingdon must be meant, for there never was a marquis of that name. He has the credit of having commenced the desecration of the old building, by converting the nave of the church into a kitchen and offices. There is also a strange story in which he is implicated, told by Browne Willis, the antiquary, and the memory of which is still preserved by tradition in the neighbourhood. The Earl, it is said, about the year 1700, or soon after, made a contract with a Mr. Walter Taylor, a builder of Southampton, for the complete demolition of the abbey, it being intended by Taylor to employ the materials in erecting a town-house at Newport and other buildings. After making this agreement, however, Taylor dreamed, that as he was pulling down a particular window one of the stones forming the arch fell upon him and killed him. His dream impressed him so forcibly that he mentioned the circumstance to a friend (who is said to have been the father of the well-known Dr. Isaac Watts), and in some perplexity asked his advice. His friend thought it would be his safest course to have nothing to do with the affair respecting which he had been so alarmingly forewarned, and endeavoured to persuade him to desist from his intention. Taylor, however, at last decided upon paying no attention to his dream; and accordingly began his operations for the pulling down of the building, in which, however, he had not proceeded far, when, as he was assisting in the work, the arch of one of the windows, but not the one he had dreamed of, which was the east window, still standing, fell upon his head and fractured his skull. It was thought at first that the wound would not prove mortal; but it was aggravated through the unskilfulness of the surgeon, and the man died. It is very possible that the whole of this story may have originated from the single incident of Taylor having met with his death in the manner he did; the added circumstances of the previous dream, &c. are not beyond the licence of embellishment of which rumour and tradition are accustomed to avail themselves in such cases. The accident which befel Taylor, however, being popularly attributed to the special interposition of Heaven, is said to have for the time saved the abbey from demolition. But the place soon after passed out of the possession of the Earls of Huntingdon, and has since been successively in that of various other families. It is, or was lately, the property of Lady Holland, the widow of Sir Nathaniel Holland, Bart.

Netley Abbey is now a complete ruin, nothing remaining except a part of the bare walls. It stands on the declivity of a gentle elevation, which rises from the bank of the Southampton water. The walk to it from the town of Southampton, of about three miles in length, is one of enchanting beauty, the surrounding landscape being rich in all the charms of water and woodland scenery. The abbey itself is so embosomed among foliage,—partly that of the oaks and other trees which rise in thick clumps around it, and some of which, springing up from the midst of the roofless walls, spread their waving branches over them, and partly that of the luxuriant ivy which clothes a great part of the grey stone in green,—that scarcely a fragment of it is visible till the visitor has got close beside it. The site of the ruin, however, is one of considerable extent. Originally the buildings seem to have formed a quadrangular court or square; but scarcely any thing more is now to be seen, except the remains of the church or chapel which occupied one of the sides. It appears to have been about 200 feet in length, by 60 in breadth, and to have been crossed at the centre by a transept of 120 feet long. The walls can still be distinctly traced throughout the whole of this extent, except in the northern portion of the transept. The roof, however, as we have said, no longer exists, having fallen in about thirty or forty years ago. Its fragments, many of them sculptured with armorial bearings and other devices, lie scattered in heaps over the floor. Many broken columns still remain; and there are also windows in different portions of the wall, the ornamental parts of which are more or less defaced, but which still retain enough of their original character to show that the building must have been one of no common architectural beauty. The east end is the most entire, and the great window here is of elegant proportions, and elaborately finished. Besides the church, various other portions of the abbey, such as the kitchen, the refectory, &c. are usually pointed out to strangers; but the conjectures by which these apartments are identified must be considered as of very doubtful authority. The whole place appears to have been surrounded by a moat, of which traces are still discernible; and two large ponds still remain at a short distance from the buildings, which no doubt used to supply fish to the pious inmates. Their retired and undisturbed waters now present an aspect of solitude which is extremely beautiful, overhung as they are by trees and underwood. About two hundred feet distance from the west end of the church, and nearer the water, is a small building, called Netley Castle, or Fort, which was erected by Henry VIII.

But the chief attraction of Netley Abbey must be understood to consist, not so much in any architectural magnificence of which it has to boast, as in the singular loveliness of the spot, and in the feelings inspired by the overthrown and desolate state of the seat of ancient piety. No mind having any imagination, or feeling for the picturesque and the poetical, but must deeply feel the effect of its lonely and mournful, yet exquisitely beautiful seclusion. It has accordingly been the theme of many verses, among which an elegy, written by Mr. George Keate, the author of the Account of the Pelew Islands and Prince Le Boo, was at one time much admired. A living poet, the Reverend Mr. Bowles, has also addressed the ruin in some lines of considerable tenderness, which we shall subjoin:—

"Fallen pile! I ask not what has been thy fate;
But when the weak winds, wafted from the main,
Through each lone arch, like spirits that complain,
Come hollow to my ear, I meditate
On this world's passing pageant, and the lot
Of those who once might proudly, in their prime,
Have stood with giant port; till, bowed by time,
Or injury, their ancient boast forgot,
They might have sunk, like thee; though thus forlorn,
They lift their heads, with venerable hairs
Besprent, majestic yet, and as in scorn
Of mortal vanities and short lived cares;
E'en so dost thou, lifting thy forehead grey,
Smile at the tempest, and time's sweeping sway."

The Bible.—Sir W. Jones, a most accomplished scholar, who had made himself acquainted with eight and twenty languages, has left it on record, that amidst all his pursuits the study of the Sacred Volume had been his constant habit. Sir Isaac Newton, the greatest of mathematicians, was a diligent student of the Bible. Mr. Locke, a man of distinguished acuteness in the study of the human mind, wrote to recommend the study of the New Testament; as having "God for its author, salvation for its end, and truth unmixed with error, for its matter." Milton, the greatest of poets, evidently had his mind most deeply imbued with the study of the word of God. Boerhaave, eminent as a natural philosopher, spent the first hour of every day in meditation on the sacred pages. Here no man can say that he has not leisure. A most beneficent institution of our Creator has given us, for this duty, a seventh part of our time, one day in every week, one whole year out of every seven.—*Bullar's Hints on the Pursuit of General Knowledge.*

Schools for Mechanics, &c.—The King of Bavaria issued a rescript in February last, directing the establishment of this description of popular schools in every quarter of his dominions, with the benevolent intention of affording the humblest workman an opportunity of receiving such instruction as may fit him for his calling. He permits the districts to name the masters of these schools for his approval. In large towns the course of instruction will take a wider range and be given in 'Colleges of Industry.'

The Sheep—heedlessness.—Cows and sheep possess much less of the instinctive apprehension of danger than horses. In a marshy country it is by no means uncommon for cows to be bemired, or *laired*, as it is termed in the northern counties; and this is still more common with sheep, though so much lighter in weight.

In mountainous and rocky districts the sheep is by no means to be trusted in places of danger, having none or little of the instinct which enables the goat and the chamois to make their way amongst the steepest precipices. It is remarkable that even upon seeing accidents befal their fellows they are not deterred from following heedlessly in the same track. The heedlessness of the animals in such cases, may probably arise from their being so much accustomed to follow others in the same track,—(a habit which causes a sheep-grazing district to be every where intersected with sheep-paths, about a foot in breadth,)—and when the leader falls over a precipice, the next follows in the same way, as Suwarrow's Russians marched into a trench till it was filled with their dead bodies.

ON THE PRODUCTION OF MANUSCRIPT BOOKS; AND THE OCCUPATIONS OF THE MONKS IN FORMER TIMES.

THERE is scarcely any error so popular, yet so unfounded, as that which invariably attributes unbounded indolence to the monastic orders of former days. To them we owe the preservation of literature, both in the pains they took to perpetuate history by their labours in transcribing, and by their diligence in the education of youth. In the larger monasteries a chamber was almost always set apart for writing, allowing room in the same apartment for other quiet employments also. The transcribers were superintended by the abbot, prior, sub-prior, and precentor of the convent, and were distinguished by the name of *Antiquarii*. These industrious persons were continually occupied in making new copies of old books, for the use of monasteries; and by this means many of our most valuable historical records were preserved. The learned Selden owed much of the information which he gave to the world, concerning the ancient dominion of the narrow seas, to monastic documents.

The Anglo-Saxon Monks were most celebrated as writers, and were the originators of the small Roman letter used in modern times. The greatest delicacy and nicety were deemed essential in the transcribing of books, whether for the purposes of general instruction, or for the use of the convents themselves. Careless and illegible writing is therefore but seldom to be met with among the remains of monastic industry; and when erasures were made, they appear to have been done with the utmost care and skill. For this purpose the Monks used pumice-stone; and they were also provided with a punctorium or awl, to make the dots, and with metal pens for writing, until after the seventh century, when quills were brought into use for pens. Ink, composed of soot, or ivory-black with gum, was used upon the vellum, for paper was not introduced until the tenth century. Hence the beautiful distinctness, as well as durability, of very ancient manuscript books. Indeed, such an important art was writing in those days considered, that Du Cange enumerates as many as a hundred different styles of writing in vogue among the learned.

With so many impediments to the multiplication of books as were attendant upon their slow production in this manner, it is not a matter of surprise that the Monks enjoyed almost a monopoly of this kind of labour, as, in truth, they were the only body of men who could properly conduct it. The expense of books was proverbially great, and large estates were frequently set apart for the purpose of purchasing them. In addition to the cost of transcribing, the materials of which books were composed were sources of great expense. The leaves were, in many instances, composed of purple vellum, for the purpose of showing off to more advantage letters of gold and silver. The binding was often very gorgeous, although of a very rude construction. The most prevailing sort of covering for books was a rough white sheep-skin, pasted on a wooden board, with immense bosses of brass; but the exterior of those intended for the church service was inlaid with gold, relics, or silver or ivory plates. Some books had leaden covers, and some had wooden leaves; but, even so early as the time of Froissart, binding in velvet, with silver clasps and studs, began to be adopted in presents to any very exalted personage. Illuminating manuscripts was also another occupation of the Monks of the middle ages, although not confined to them, for the greatest painters of the day disdained not to contribute to these cumbrous and sometimes confused decorations. The art of correct drawing, and a knowledge of perspective, cannot, however, be traced in the generality of the fantastic pictures by which illuminated books are adorned. Colouring and gilding appear to have been the chief points to which the attention of the illuminators was directed. The neutral tint was first laid on somewhat in the same mode as in the present day, some portions being left untouched in order to be afterwards embedded in gold and silver. The pictures represented different subjects, according to the nature of the book which they were intended to embellish. The title on the pages was formed of capital letters of gold and azure mixed. Illuminated pictures are of a dazzling brightness; the white predominating, which, not being an oil colour, reflects the rays of light, and does not absorb them. So much custom had the Monks in their labours of transcribing and illuminating, that they were sometimes obliged to introduce hired limners, although contrary to the monastic rule in general; but such aids were seldom resorted to, the Monks being usually the only labourers. The invention of printing diminished the importance and annihilated the profits of writing; and, in 1460, that of engraving superseded the art of illuminating. The last specimen of this latter practice is to be met with at Oxford, in the Lectionary, or Code of Lessons for the Year, composed for Cardinal Wolsey. The achievement of this work, so long after printing and engraving had become popular, evinces how reluctant that great and splendid prelate was to relinquish a mode of framing books, which was certainly calculated to give them, in the eyes of the vulgar, an attractive and costly character. Illuminating is supposed to have originated from the necessity of rendering the means of knowledge attractive first to the senses, in those days of comparative darkness and ignorance.

Besides transcribing and illuminating, the Monks excelled in sculpture and painting, turning, carpentry,

jewellery, and goldsmith's work. Thomas de Bamburgh, a monk, of Durham, was even employed to make two great warlike engines for the defence of the town of Berwick; and an astronomical clock, made by Lightfoot, a monk, of Glastonbury, in 1325, is still preserved at Wells. Music, which Fuller, in his Church History, observes to "have sung its own dirge at the Reformation," was sedulously cultivated in monastic institutions; and the Monks skilled in that accomplishment went from monastery to monastery, in order to disseminate their instructions.

Much might be said concerning the indefatigable attention paid by this class of men to the education of youth. This was a department in which, according to the notions of the time, they eminently excelled. In compliance with the prevalent superstitions, the learning of the service and rule of their respective orders was, it is true, the first point to be accomplished in the instruction of their pupils, the novices. These individuals, most of whom entered young, were required to commit the Psalter to memory, without deviating from a single word in the original; a painful exercise, which was the occupation of hours passed in the solitude of the cell. Latin, essential because the language of the Septuagint, was an object of incessant study, as well as French, which the Norman Conquest had introduced into common use in this country. To these studies were added writing and accounts, and several of the mechanical arts, besides some initiation into the popular pastimes of the day, and hunting, which was deemed salutary to the health. Probably more attention was paid to dexterity in these arts and accomplishments, than to the actual culture of the understanding. The Monks, though pre-eminent in architecture, as well as in most of the arts of life, made but little figure in literature, considering the leisure and opportunities which they enjoyed. For this the routine-like nature of their existence may, in some degree, account. Nothing is so likely to damp the ardour of genius as a continual succession of formal observances, which dissipate the thoughts from any one great object. The minds of these recluses were also narrowed by localities. Pent up from general society, and in a small sphere, the interests, and often the contentions which agitated their respective convents, became of paramount importance to them, and were mingled even with their historical records, with a degree of tasteless and absurd prolixity, which has much lessened the value of the few original works which they composed.

WARS WITH THE WILD BEASTS.

[Lion springing from Covert. See p. 141.]

THE LION.

[The following are in continuation of the Sketches of a South-African Settler.]

In our journey from Algoa Bay to our location of Glen Lynden, or Baviaan's River, we had occasionally seen in the distance herds of large game, chiefly of the antelope tribe; and we found our highland valley to be pretty well stocked with quaggas, hartebeests, reeboks, rietboks, oribis, klipspringers, wild hogs, and a variety of smaller animals. But we had as yet seen none of the beasts of prey that inhabit the country, with the exception of one or two jackals, although we had once heard the *gurr* of the Cape tiger (or leopard), and been serenaded nightly by the hungry howl of the hyæna, almost all the way from the coast. We were not allowed, however, to continue long without a closer acquaintance with our neighbours of the carnivorous class. The lion introduced himself, in a mode becoming his rank and character, a few nights after our arrival at Glen-Lynden.

The serene weather with which we had been favoured

during our journey, was succeeded on the 3d of July (the day after our first sabbath meeting) by a cold and wet evening. The night was extremely dark, and the rain fell so heavily that, in spite of the abundant supply of dry firewood which we had luckily provided, it was not without difficulty that we could keep one large watch-fire burning. Having appointed our watch for the night (a service which all the male adults, masters as well as servants, agreed to undertake in rotation), we had retired to rest, and, excepting our sentinel, were all buried in sleep, when about midnight we were suddenly roused by the roar of a lion close to our tents. It was so loud and tremendous that for a moment I actually thought that a thunder cloud had broken close beside us. But the peculiar *expression* of the sound—the voice of fury as well as of power—instantly undeceived me; and instinctively snatching my loaded gun from the tent pole, I hurried out—fancying that the savage beast was about to break into our camp. Most of our men had sprung to their arms, and were hastening to the watch-fire, with a similar apprehension. But all around was complete darkness; and scarcely two of us were agreed as to the quarter whence the voice had issued. This uncertainty was occasioned partly, perhaps, by the peculiar mode this animal often has of placing his mouth near the ground when he roars, so that the voice rolls, as at were, like a breaker along the earth; partly, also, to the echo from a rock which rose abruptly on the opposite bank of the river; and, more than all, to the confusion of our senses in being thus hurriedly and fearfully aroused from our slumbers. Had any one retained self-possession sufficient to have quietly noted our looks on this occasion, I suspect he would have seen a laughable array of pale or startled visages. The reader who has only heard the roar of the lion at the Zoological Gardens, can have but a faint conception of the same animal's voice in his state of freedom and uncontrolled power. Novelty in our case gave it double effect, on our thus hearing it for the first time in the heart of the wilderness. Having fired several volleys in all directions round our encampment, we roused up the half-extinguished fire to a blaze, and then flung the flaming brands among the surrounding trees and bushes. And this unwonted display probably daunted our grim visitor, for he gave us no further disturbance that night.

A few days afterwards some of our people had a daylight interview with a lion—probably the same individual who had given us this boisterous greeting. They had gone a mile or two up the valley to cut reeds for thatching the temporary huts which we proposed to erect by the combined labour of the party, and were busy with their sickles in the bed of the river, when, to their dismay, a huge lion rose up among the reeds, almost close beside them. He leaped upon the bank, and then turned round and gazed steadfastly at them. One or two men who had guns, seized them hastily and began to load with ball. The rest, unarmed and helpless, stood petrified; and had the lion been so disposed he might easily have made sad havock among them. He was, however, very civil—or, to speak more correctly, he was probably as much surprised as they were. After quietly gazing for a minute or two at the intruders on his wild domain, he turned about and retired, first slowly, and then, after he was some distance off, at a good round trot. They prudently did not attempt to interfere with his retreat.

After this, when we had moved our encampment farther up the valley, and had exchanged our tents for temporary reed-covered cabins, we were visited, during the winter and ensuing spring, several times by lions, but without our ever coming into actual conflict with them. On one of those occasions a lion and lioness had very nearly carried off, in a dark night, some of our horses, but were scared by a firebrand when within a few yards of their prey It is worthy of remark, that the lion always prefers a horse to an ox when he has the choice. After we had got some Hottentots beside us, we rode out, after some of those alarms, to hunt these formidable visitors, but without being able to discover their coverts.

The first actual rencontre occurred while I was absent from the settlement, on a visit to our district magistrate. The following were the circumstances, as detailed to me by the parties present. A horse was missing, belonging to Mr. George Rennie, a young farmer of our party (descended from the same family in East Lothian as the celebrated engineer of that name); and, after some search, it was discovered by the foot-prints to have been killed by a lion. The boldest men of the settlement having assembled to give battle to the spoiler, he was traced without difficulty by the Hottentots to a secluded spot, about a mile or upwards from the place where he had seized his prey. He had carried it with him to devour it at his leisure, as is the usual practice of this powerful animal. On the approach of the hunters, the lion, after some little demur, retreated to a small thicket in a shallow ravine at no great distance. The huntsmen followed cautiously, and having taken post on a height adjoining the ravine, poured volley after volley into the thicket. This bombardment produced no perceptible effect; the lion kept under covert and refused to give battle; only when the wolf-hounds were sent in to tease him, he drove them forth again with a savage growl, and a bloody scratch or two from his claws. At length, Mr. Rennie, the leader of the hunt, and a man of daring hardihood, losing patience at this fruitless proceeding, descended from the height, and approaching the thicket, threw several large stones into the midst of it. This rash bravado brought forth the lion. He sprung fiercely from his covert, and with another bound or two would probably have had our friend prostrate under his paw, but most fortunately at this critical moment, the attention of the savage beast was attracted by a favourite dog of Mr. Rennie's, which ran boldly up to the lion and barked in his face. The poor dog was destroyed in a moment: a single blow from the lion's paw rewarded his generous devotion with death. But that instant was sufficient to save his master. Mr. Rennie had instinctively sprung back a pace or two, and his comrades on the rock fired at once with effect. The lion fell dead upon the spot, several balls having passed through his body.

The next serious rencontre that we had with the monarch of the wilderness occurred a considerable time afterwards, when the several families of our party had taken possession of their separate allotments, and our temporary encampment was broken up. I happened then to be residing with my family, and a few Hottentot servants, at a place to which, from the picturesque forms of the adjacent mountains, we had given the Scottish name of Eildon. My next neighbour, at that time, was Captain Cameron, a Scotch officer who had lately come to occupy the farm immediately below me on the river. I had gone one evening down with another gentleman and two or three female relatives to drink tea with Captain Cameron's family. The distance being scarcely four miles, we considered ourselves, in that thinly peopled country, next-door neighbours; and, as the weather was fine we agreed to ride home by moonlight —no lions having been seen or traced in the valley for nearly twelve months. We returned accordingly, jesting as we rode along about wild beasts and Caffers. That part of the valley we were passing through is very wild, and encumbered in several places with jungles and thickets of evergreens; but we had no suspicion at the moment of what afterwards appeared to be the fact—that a lion was actually dogging us through the bushes the whole way home. Happily for us, however, he did not then show himself, nor give us any indication of his presence; being probably somewhat scared by our number, and the white dresses of the ladies glancing in the moonlight.

About midnight, however, I was awakened by an unusual noise in my *kraal*, or cattle-fold, close behind my cabin. Looking out, I saw the whole of the horned cattle springing wildly over the high thorn fence, and scampering round my hut. Fancying that a hyæna, which I had heard howling when I went to bed, had alarmed the animals by breaking into the kraal, I seized my gun, and sallied forth in my shirt to have a shot at it. Though the cloudless full moon shone with a brilliant light (so bright in that fine climate that I have frequently read print by it), I could discover no cause for the terror of the cattle, and after calling a Hottentot to shut them again into the kraal, I retired once more to rest. Next morning, Captain Cameron rode up to inform me that herdsmen had discovered by the traces in the path, that a large lion had followed us up the valley the preceding night; and, upon further search, it was ascertained that this unwelcome visitant had actually been in my kraal the preceding night, and had carried off a couple of sheep. But as he appeared by the traces (which our Hottentots followed with wonderful dexterity) to have retreated with his prey to the mountains, we abandoned for the moment all idea of pursuing him.

The lion was not disposed, however, to have done with us on such easy terms. He returned that very night, and killed my favourite riding-horse, little more than a hundred yards from the door of my cabin. I then considered it full time to take prompt measures in self-defence; and sent a messenger round the location to call out the neighbours to hunt him, being assured by my Hottentots that, as he had only devoured a small portion of the horse, he would certainly be lurking in the immediate vicinity. The huntsmen speedily assembled, and, with the aid of the Hottentots, we soon discovered the lion in covert, about a mile from the spot. The scene that followed resembled very closely, in many particulars, the adventure of Mr. George Rennie on the occasion already described. The lion, on this occasion also, refused to leave the covert. Mr. Rennie and his brother John, and another Scotchman, with three mulatto Hottentots, went into the jungle to attack him. He then sprung out in a fury, and gave battle to the assailants—struck down John Rennie, and placed his foot upon him, and looked round upon us most majestically for a few seconds, as if considering whether he should tear a few of us to pieces or not. Seeing us a numerous band (there were seventeen of us) he seemed to judge we were too many for him; and so, leaving our fallen friend with no further injury than the marks of his five claws about half an inch into his flesh, he bounded from the thicket, and retreated up Glen-Douglas towards the Caffer mountains. We pursued him hotly up the glen, and our wolf-hounds held him at bay under a mimosa tree till we intercepted his path, seized the heights around, and shot him dead, without again venturing within reach of his claws. He was a fine full grown lion of the yellow variety; and, in memorial of our African exploits, the skin and skull were sent as a small token of kindness and respect to Sir Walter Scott, and now form part of the ornaments of the lamented poet's armoury at Abbotsford. A more detailed account of this lion hunt may be found in 'The Library of Entertaining Knowledge;' Menageries, vol. I. page 162.

MINERAL KINGDOM.—Section 6.

The Secondary Rocks comprehend a great variety of different beds of stone, extending from the primary strata to the chalk, which forms the upper or most recent member of the divison. There are certain principal groups, which are divisible into subordinate beds, all distinguishable by marked peculiar characters. They occur in the following descending order:—

The Chalk Group.
The Oolite Group.
The Red Marl Group.
The Coal Group.
The Mountain Limestone Group.
The Old Red Sandstone Group.
The Grauwacke Group.

We shall briefly describe the leading characters of each group, but in an *ascending* order, from the grauwacke, a German local name for the principal rock among the lowest members of the secondary series, which we described in our last section as lying upon the primary strata. This group occurs extensively in the hilly country of the south of Scotland, in Westmoreland, Wales, and Devonshire. The *Old Red Sandstone Group* is characterized by its containing a great number of beds composed of water-worn fragments, and sandstone layers of a fine grain, and by its being usually of a deep red colour. It contains very few organic remains, but terrestrial plants and marine shells are sometimes found in it. It is the principal rock in Herefordshire, but is not of very great extent in other parts of England; it is estimated to be in England about 1500 feet thick. It must not be confounded with another red sandstone which covers a great extent of the midland and northern counties of England, and which belongs to a more recent period, viz., the *Red Marl Group*. Above the old red sandstone comes an important suite of beds, the *Mountain Limestone Group*. The limestone is usually very compact or crystalline, yielding in many places excellent marbles for chimney-pieces, &c. It contains a great variety of organic remains, consisting of corals and many species of zoophytes and other radiated animals, some species of crustacea, a few remains of fish, and a great variety of marine shells. It forms considerable mountain chains in the north of England, Derbyshire, and Somersetshire, and abounds in many places in valuable ores of lead; it is estimated to have a thickness of 900 feet. Above this limestone comes the important group containing our coal mines. As this group will form the subject of a special article, we shall not say more about it at present than to remark, that it must have been produced under very different circumstances from the limestone which it covers, for it rarely contains any marine remains, but a vast profusion of plants of many genera and species. The united thickness of the Coal Group is, probably, not less than 1700 feet. The *Red Marl Group* consists of a number of beds of a red marly sandstone, often variegated by stripes and patches of grey, blue, and white, which occupy a great extent of country in England; there is an almost uninterrupted line of it from Hartlepool, in the county of Durham, to Exeter, and it covers the greater part of Nottinghamshire, Warwickshire, Staffordshire, Shropshire, Worcestershire, and Cheshire. In the two last counties it contains valuable mines of common salt, and copious brine-springs of the same, and in other places great quantities of alabaster or plaster-stone. In this group are found considerable beds of limestone of a peculiar quality, from containing a large proportion of the earth, called magnesia. The sandstones of the group contain very few organic remains, but the limestones abound in those of marine animals, among which have been found the bones of gigantic amphibious reptiles like crocodiles. The group is estimated at not less than 2100 feet of thickness. The *Oolite Group* is so called from the prevalence in it of a kind of limestone composed of small round grains, like the eggs in the roe of a fish, whence oolite, from two Greek words signifying egg and stone. It contains about twelve alternations of subordinate beds, or rather systems of beds, consisting of limestones of different qualities and of clays, their united thickness being about 2600 feet, of which 1100 are formed by two beds of clay of 500 and 600 feet each. The whole

group contains a vast abundance of animal remains, which are almost exclusively marine, consisting of numerous genera and species of the molluscous animals, crustacea, insects, echini, zoophytes, and skeletons of several species of gigantic reptiles analogous to the crocodile. The celebrated stones of Bath, Ketton, and Portland, and most of the best building stones of the middle and south of England, are found in this group, which covers a great part of the country that lies between a line drawn from the mouth of the river Tees to Watchet, on the south coast of the Bristol Channel, and another line drawn from Lynn in Norfolk, to Poole in Dorsetshire. The last or uppermost of the secondary rocks is the *Chalk Group*, which is separated from the Oolite Group by several beds of sands, clays, and sandstones, and including these, has been estimated to be 1900 feet thick. It is unnecessary to say any thing of the composition of the principal member of the group, as it must be so familiar to all our readers. It covers a great extent of country, forming low hills and downs from Flamborough Head in Yorkshire to Weymouth, in a curvilinear sweep, the convexity directed to the S.E., and in many places E.S.E., and S. of that line. The whole group abounds in organic remains of the same *classes* as those found in the Oolite Group below.

It thus appears that the secondary rocks consist of an extensive series of strata, of limestones, sandstones, and clays, all of which contain either rounded fragments of pre-existing rocks or organic remains, or both; and each group, and all the subordinate members of the groups, are distinguishable by characters of great constancy and certainty, derived from the peculiar nature of the included fossils. They must all have been deposited in an horizontal position, but there are parts of them which have undergone greater or less disturbance, being often thrown into a vertical position, and broken, twisted, and disturbed in the most extraordinary manner. Many of the disturbances of the lower groups took place prior to the deposition of the upper; for the latter are found lying in unconformable stratification on the ends of the former as represented in diagram No. 5, Section IV. (p. 87.) They are traversed by veins or dykes, as they are often termed, of whinstone and other unstratified rocks, and there is usually great disturbance of the strata when these occur, the dykes are often of great magnitude, and the rock is frequently thrust in huge wedge-shaped masses, of miles in superficial dimensions and some hundred feet thick, between the regular strata. After the deposit of the secondary rocks a remarkable change took place, for all the strata that lie above the chalk have a totally different character from that rock and all below it. They have been classed together in one great division, and have been designated the TERTIARY ROCKS. Thus the whole series of strata, of which the crust of the globe is composed, is divided into the *Primary*, the *Secondary*, and the *Tertiary*. It is evident that at the time the secondary rocks were deposited, a great part of the present continent of Europe must have been considerably lower than the present level of the sea, that when the oldest or lowest members of the series were forming, the summits of the mountain ridges of primary rocks rose as islands of different magnitudes from the bosom of the deep, that at several successive periods these islands were more elevated, and attained consequently a greater superficial extent, the newer formed strata occupying the lower levels. In the progress of this series of changes of the surface of the globe, when there were evidently occasional depressions of the land as well as elevations, there appear to have been formed basin-shaped cavities or troughs, not entirely cut off from communication with the sea, and vast estuaries, in which the tertiary strata were deposited. While the secondary strata stretch continuously for hundreds of leagues, the tertiary are found only in detached insulated spots of comparatively limited extent. In this state of the earth's surface there must have been vast inland fresh water lakes, for we find regularly stratified deposits of great thickness full of organic remains, which exclusively belong to animals that lived in fresh water, and to terrestrial animals and plants. Like the secondary, the tertiary rocks consist of a great variety of strata of limestones, sandstones, clays, and sands, which have distinct characters, and have been united in several groups. In them we first discover the remains of land quadrupeds and birds, and bones of mammalia are most abundant in the beds nearest to the surface. Among all the various remains of animals and plants that are found in the secondary rocks from the chalk downwards, not one has been found which is identical with any living species. Although they have characters agreeing with those by which existing animals have been grouped together in the greater divisions of genera, families and classes, the living individuals of the same divisions have forms of structure distinct from any found in a fossil state in the secondary rocks. But with the tertiary strata a new order of things commences, for in the lowest of these a small proportion, about three and a half per cent., of the fossil shells cannot be distinguished from species that now exist; as we approach the higher beds the proportion always increases, and in the most recent stratum, it amounts to nine-tenths of the whole. It is not more than twenty-one years since the great division of the tertiary rocks was established; prior to that time the peculiar characters which separate them from the secondary strata had been entirely overlooked, a circumstance which marks very strongly that geology is the youngest of the sciences. The discovery was made by the celebrated Cuvier and his associate M. Brongniart, who found that the city of Paris was built in a hollow basin of chalk that had been subsequently partially filled by vast deposits of clays, limestones, sands, and sandstones, and that there were alternations of beds containing remains of fresh water and terrestrial animals and plants, with others containing only the remains of marine animals. The publication of the work of the French naturalists led to a similar discovery in our own island, and singularly enough in the valley of the Thames, so that the capitals of France and England are both built upon these strata, so strangely neglected for so long a time, although occurring in the very spots where the greatest numbers of scientific men are collected together in both countries. A series of tertiary strata was discovered by Mr. Webster in the Isle of Wight, having strong points of resemblance with that of the environs of Paris, and these with some partial deposits on the coasts of Suffolk and Lancashire, constitute the whole of the tertiary rocks found in Great Britain. It was for some time supposed that these newer strata, which were soon found not to be confined to the neighbourhood of Paris and London, extended like the secondary rocks over great tracts of country; and that there was such a degree of uniformity in their characters, that deposits widely distant from each other could be recognised as belonging to the same period in the chronological order of succession of the strata. Later observations, however, have shown that although possessing a general character of resemblance, they have been so much modified in their formation by local circumstances, that no two tertiary deposits, even of the same era, are alike. The discoveries of the last few years have led geologists to establish distinct subordinate groups, as in the case of the secondary rocks, and the upper stratum of the Paris basin, which was at one time considered the most recent of stratified rocks, has been found to be inferior in the order of succession to many others, some thousand feet thick. Organic remains are the great characters of distinction, and Mr. Lyell, in his 'Principles of Geology,' has proposed a division of the series founded upon the proportion of shells contained in the stratum which are identical with living species, that stratum being the most modern where the proportion is greatest.

CAMPHOR.

[Camphor Tree.]

Camphor, which is so much used for medical purposes, is likewise extensively employed in the composition of varnishes, especially in that of copal. It is the peculiar product of the root of a species of laurel (*laurus camphorata*), a tree growing in China, Japan, and several parts of India. The leaves of this plant stand upon a slender footstalk, and have an entire undulated margin running out into a point. Their upper surface is of a lively and shining green; the under part is of a yellower green, and of a silky appearance; a few lateral nerves curve towards the margin, frequently terminating in small worts or excrescences—a circumstance peculiar to this species of laurel. The footstalks of the flowers do not come forth until the tree has attained considerable age and size. The flower stalks are slender, and branch at the top, dividing into very short stems, each supporting a single flower. This is white, and succeeded by a shining purple berry of the size of a pea. It is composed of a small kernel enclosed in a soft pulpy substance—having the aroma of cloves and camphor. The bark of the stem of the tree is outwardly somewhat rough; but on the inner surface it is smooth and mucous, and therefore readily separated from the wood, which is dry and of a white colour. Some travellers affirm that old trees contain camphor so abundantly that on splitting the trunk it is found in the form of large tears, so pure as not to require rectification. The usual method, however, of obtaining this substance is from the roots, pieces of which are put into an iron vessel furnished with a capital, or large head; this upper part is internally filled with cords of rice straw; the joinings are then luted, and the distillation proceeded upon. On the application of heat the camphor sublimes and attaches itself to the straw within the head. The Dutch purify the substance thus obtained by mixing an ounce of quicklime with every pound of the camphor, and subjecting it to a second sublimation in large glass vessels.

Camphor is well known as a white friable substance, having a peculiar aromatic odour, and a strong taste. Some chemists consider it as a concrete vegetable oil. It melts at a temperature of 288°, and boils at 400° Fahrenheit. Its specific gravity is less than that of water. It is very inflammable, burning with a white flame and smoke, and leaving no residue. Alcohol, ether, and oils dissolve it. The only indication whereby it appears that water acts upon camphor is that of acquiring its smell; it is said, however, that a Spanish surgeon has effected the solution in water by means of carbonic acid*. Camphor may be burned as it floats on the surface of water It is not altered by mere exposure to atmospheric air, but it is so extremely volatile that if in warm weather it is placed in an open vessel it evaporates completely. It dissolves in alcohol, and like the resins, is immediately precipitated again by the addition of water.

Camphor has been found to exist in numerous plants whence it may be obtained by distillation. Neumann and other chemists extracted it from the roots of zedoary, thyme, sage, the inula helenium, the anemone, the pasque flower, and some other vegetables. Experiment has shown that the plants whence it is extracted afford a much larger quantity of camphor when the sap has been suffered to pass to the concrete state by several months' drying.

This substance was very early known to the Eastern nations; it was introduced into Europe by the Arabians, but was entirely unknown to the ancient Greeks and Romans.

* Ure's Dictionary of Chemistry.

Rabbits.—The care with which a doe rabbit provides for her young is very remarkable. She not only makes a nest of the softest hay, from which she carefully munches out all the harder portions, but she actually strips the fur or down off her own breast to spread over the hay. At first she covers up her young ones with the same materials in order to keep them warm, uncovering them only for the purpose of giving them suck. She is also extremely careful in proportioning this covering to the severity of the weather and the tenderness or strength of her offspring, gradually diminishing it as they grow more robust.

The Horse—instinct.—A horse before venturing up a leap measures the distance with his eye, and will not make the attempt if he think he cannot clear it. (*Dr. Haslam on Sound Mind.*) In alpine countries the horses accustomed to the difficult passes in the mountains seldom make a false step or trust themselves on a place where their footing is insecure. In the same way the horses accustomed to a marshy country may be safely trusted in crossing bogs and roads, as they rarely venture upon any spot where they may be in danger of being mired.

Some time ago there was a horse in the artillery stud at Woolwich which was (while in the riding-school) the most docile and finely trained animal that could be imagined. He would at the word of command lie down and not rise till he was ordered: he would bow with the most dignified grace to visitors; and perform other feats with undeviating obedience. But the instant he was taken out of doors, and found himself in the open air and the open roads, he became altogether unmanageable; and when he could not cast his rider, which he did all he could to effect, he lay down and rolled about. It may be remarked, that when first purchased he was found to be extremely vicious, but being a fine horse pains were taken to break him in—and as it appears successfully—within the walls of the riding-school, though out of doors his old habits remained unbroken.

Musical Taste.—The ass has been frequently made one of the parties in the most popular fables from Æsop downwards. The following is not much known: A trial of skill in singing being agreed on between the cuckoo and the nightingale, the ass was chosen as umpire. After each had done his best, the sagacious ass declared that the nightingale sung extremely well; but for a good plain song the cuckoo was far his superior.—*Scots' Presbyterian Eloq. Displayed.*

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